2698

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SEARCH REQUEST FORM

CP2 4 EIC

Requestor's Name: M. Peffley

Serial Number: 09/054,660

Date: 8/17/99 Phone: 308-4305 Art Unit: 3739

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevent citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevent claim(s).

A method of revascularizing a patient's myocardium comprising:

- positioning an electrode terminal in proximity to a site on the wall of the heart;
- applying high frequency (i.e. RF) voltage to the electrode terminal to remove tissue

— Procedure also know as Transmyocardial Revascularization (TMR)

STAFF USE ONLY

Date completed: 8-18-99
Searcher: EK
Terminal time: 55
Elapsed time:
CPU time:
Total time: 60
Number of Searches:
Number of Databases: 4

Search Site
- ✓ STIC
- CM-1
- Pre-S

Type of Search
- N.A. Sequence
- A.A. Sequence
- Structure
- ✓ Bibliographic

Vendors
- IG
- ✓ STN $111.83
- Dialog
- APS
- Geninfo
- SDC
- DARC/Questel
- Other

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=> file home
FILE 'HOME' ENTERED AT 09:26:18 ON 18 AUG 1999

=> display history full l1-

     (FILE 'HOME' ENTERED AT 08:41:39 ON 18 AUG 1999)

     FILE 'MEDLINE' ENTERED AT 08:42:48 ON 18 AUG 1999
                E MYOCARDIAL REVASCULARIZATION/CT
L1         29477 SEA "MYOCARDIAL REVASCULARIZATION"+NT/CT
                E ELECTRODE/CT
                E E3+NT/CT
                E ELECTRODE/CT
                E E3+ALL/CT
L2         32190 SEA ELECTRODES+NT/CT
L3         50106 SEA RF OR HF OR (R OR H)(W)F OR (RADIO# OR HIGH OR
                 ULTRAHIGH)(2A)(FREQ# OR FREQUENC?) OR MHZ OR KHZ OR (M
                 OR H)(A)HZ OR MEGAHERTZ# OR KILOHERTZ#
L4           139 SEA L1 AND L2
L5             2 SEA L4 AND L3

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     1999
L6           144 SEA TMR OR T(W)M(W)R OR (TRANSMYOCARD? OR MYOCARD?)(2A)RE
                 VASCUL?
L7          2021 SEA TMR OR T(W)M(W)R OR (TRANSMYOCARD? OR MYOCARD?)(2A)RE
                 VASCUL?
L8          2464 SEA TMR OR T(W)M(W)R OR (TRANSMYOCARD? OR MYOCARD?)(2A)RE
                 VASCUL?
L9          5749 SEA TMR OR T(W)M(W)R OR (TRANSMYOCARD? OR MYOCARD?)(2A)RE
                 VASCUL?
     TOTAL FOR ALL FILES
L10        10378 SEA TMR OR T(W) M(W) R OR (TRANSMYOCARD? OR MYOCARD?)(2A)
                  REVASCUL?

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                 OR H)(A)HZ OR MEGAHERTZ# OR KILOHERTZ#
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                 OR H)(A)HZ OR MEGAHERTZ# OR KILOHERTZ#
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                 OR H)(A)HZ OR MEGAHERTZ# OR KILOHERTZ#
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                OR H)(A) HZ OR MEGAHERTZ# OR KILOHERTZ#
L17           16 SEA L6 AND L11
L18            3 SEA L7 AND L11
L19            7 SEA L8 AND L11
L20           13 SEA L9 AND L11
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L23            1 SEA L18 AND L13
L24            0 SEA L19 AND L14
L25            0 SEA L20 AND L15
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                OR MILLIAMP?
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                OR MILLIAMP?
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                OR MILLIAMP?
L30      159091 SEA VOLT? OR MV OR MILLIVOLT? OR AMP# OR AMPERE? OR MA
                OR MILLIAMP?
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                OR MILLIAMP?
L32            3 SEA L17 AND L27
L33            1 SEA L18 AND L28
L34            3 SEA L19 AND L29
L35            3 SEA L20 AND L30
     TOTAL FOR ALL FILES
L36           10 SEA L21 AND L31
L37            9 SEA L6 AND L12
L38           11 SEA L7 AND L13
L39           12 SEA L8 AND L14
L40           23 SEA L9 AND L15
     TOTAL FOR ALL FILES
L41           55 SEA L10 AND L16
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L43            0 SEA L38 AND L28
L44            0 SEA L39 AND L29
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L46            3 SEA L41 AND L31

     FILE 'MEDLINE' ENTERED AT 09:23:25 ON 18 AUG 1999
L47            5 SEA L5 OR L35

     FILE 'EMBASE' ENTERED AT 09:23:51 ON 18 AUG 1999
L48            7 SEA L19 OR L34
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FILE 'BIOSIS' ENTERED AT 09:24:12 ON 18 AUG 1999
L49 3 SEA L23 OR L18 OR L33

FILE 'WPIDS' ENTERED AT 09:24:35 ON 18 AUG 1999
L50 6 SEA L22 OR L32 OR L42

FILE 'HOME' ENTERED AT 09:26:18 ON 18 AUG 1999

FILE HOME

FILE MEDLINE
FILE LAST UPDATED: 16 AUG 1999 (19990816/UP). FILE COVERS 1960 TO

MEDLINE has been reloaded to reflect the annual MeSH changes made
the National Library of Medicine for 1999. Enter HELP RLOAD for de

OLDMEDLINE, data from 1960 through 1965 from the Cumulated Index
Medicus (CIM), has been added to MEDLINE. See HELP CONTENT for deta

Left, right, and simultaneous left and right truncation are availab
Basic Index. See HELP SFIELDS for details.

THIS FILE CONTAINS CAS REGISTRY NUMBERS FOR EASY AND ACCURATE
SUBSTANCE IDENTIFICATION.

FILE WPIDS
FILE LAST UPDATED: 13 AUG 1999 <19990813/UP>
>>>UPDATE WEEKS:
MOST RECENT DERWENT WEEK 199932 <199932/DW>
DERWENT WEEK FOR CHEMICAL CODING: 199932
DERWENT WEEK FOR POLYMER INDEXING: 199932
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> D COST AND SET NOTICE DO NOT REFLECT SUBSCRIBER DISCOUNTS -
SEE HELP COST <<<

>>> IMPORTANT DERWENT ANNOUNCEMENT ABOUT CHANGES TO CPI
SUBSCRIBER INDEXING - SEE NEWS <<<

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++
YEAR 2000 FORMAT CHANGES - SEE NEWS
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FILE BIOSIS
FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT

FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 17 August 1999 (19990817/ED)

The BIOSIS file has been reloaded. Enter HELP RLOAD and HELP REINDE for details.

FILE EMBASE
FILE COVERS 1974 TO 12 Aug 1999 (19990812/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE LCA
LCA IS A STATIC LEARNING FILE

THIS FILE CONTAINS CAS REGISTRY NUMBERS FOR EASY AND ACCURATE SUBSTANCE IDENTIFICATION.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> file medline
FILE 'MEDLINE' ENTERED AT 09:26:57 ON 18 AUG 1999

FILE LAST UPDATED: 16 AUG 1999 (19990816/UP). FILE COVERS 1960 TO DATE.

MEDLINE has been reloaded to reflect the annual MeSH changes made by the National Library of Medicine for 1999. Enter HELP RLOAD for details.

OLDMEDLINE, data from 1960 through 1965 from the Cumulated Index Medicus (CIM), has been added to MEDLINE. See HELP CONTENT for details.

Left, right, and simultaneous left and right truncation are available in the
Basic Index. See HELP SFIELDS for details.

THIS FILE CONTAINS CAS REGISTRY NUMBERS FOR EASY AND ACCURATE SUBSTANCE IDENTIFICATION.

=> d l47 1-5 all

L47 ANSWER 1 OF 5 MEDLINE
AN 96272479 MEDLINE
DN 96272479
TI A critical period of ventricular fibrillation more susceptible to defibrillation: real-time waveform analysis using a single ECG lead.
AU Hsia P W; Frerk S; Allen C A; Wise R M; Cohen N M; Damiano R J Jr
CS Department of Biomedical Engineering, Medical College of Virginia, Virginia Commonwealth University, Richmond, USA.

SO PACING AND CLINICAL ELECTROPHYSIOLOGY, (1996 Apr) 19 (4 Pt 1) 418-30.
Journal code: PAB. ISSN: 0147-8389.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199612

AB Previous studies have suggested that variations in the underlying ventricular fibrillation (VF) waveform may be one of the factors responsible for the probabilistic nature of defibrillation. The heart appeared to be more susceptible to defibrillation at higher absolute VF **voltages** (AVFV). This study investigated in an open-chest canine model (n = 8), a newly developed system that analyzed the VF waveform in real-time, instantaneously determined the time to shock, and immediately delivered a fixed low energy DC shock. A two parameter tracking technique using a running long-term and short-term AVFV average was devised to automatically identify a high **voltage** peak area of the VF waveform, which has been hypothesized to represent a critical period susceptible to defibrillation. Using a DC shock estimated at the 50% success level, the performance using this technique in 58 defibrillation trials was compared to the performance of the conventional method of shocking at a fixed time (random shock method) in 62 trials. Patch size, **electrode** location, and discharge **voltage** were kept constant while VF duration, transmyocardial resistance (**TMR**), energy delivered, and AVFV at the point of shock were measured. Shock energy and current, **TMR**, and VF duration were similar with both shock methods. A significantly higher AVFV was observed for trials performed with the peak shock method (0.66 +/- 0.02 **mV**) as compared to trials performed with the random shock method (0.25 +/- 0.09 **mV**) ($P < 0.003$). Using lead II as the only sensing lead, the success rate was increased in 6 of 8 dogs (75%) with the new method. One animal showed identical performance, and one animal a worse performance. The overall increase in success rate was 24% using a single ECG lead (range 0%-100%; $P < 0.04$). Our data document that using this algorithm a period of high VF **voltage** can be detected in real-time. The improved success in the majority of animals supports the hypothesis that a critical period susceptible to defibrillation exists during VF. However, the high AVFV detected using a single ECG lead did not translate to an improved success rate in all animals. This suggests that other factors in addition to the VF **voltage** measured on a single lead of the ECG are important in characterizing this critical period.

CT Check Tags: Animal; Comparative Study; Female; Male; Support, Non-U.S. Gov't
Algorithms
Defibrillators, Implantable
Dogs
*Electric Countershock: MT, methods
*Electrocardiography: MT, methods

Random Allocation
*Signal Processing, Computer-Assisted
Ventricular Fibrillation: DI, diagnosis
Ventricular Fibrillation: PP, physiopathology
*Ventricular Fibrillation: TH, therapy

L47 ANSWER 2 OF 5 MEDLINE
AN 93070514 MEDLINE
DN 93070514
TI [Percutaneous **high frequency** current catheter ablation in permanent ventricular tachycardia of the "bundle-branch reentry" type after implantation of an automatic cardioverter-defibrillator].
Perkutane Hochfrequenzstrom-Katheterablation bei permanenter ventrikularer Tachykardie vom "bundle branch reentry"-Typ nach Implantation eines automatischen Kardioverter-Defibrillators.
AU Willems S; Borggrefe M; Shenasa M; Chen X; Haverkamp W; Hindricks G; Wietholt D; Block M; Breithardt G
CS Medizinische Klinik und Poliklinik, Westfalische Wilhelms-Universitat Munster..
SO ZEITSCHRIFT FUR KARDIOLOGIE, (1992 Sep) 81 (9) 486-91.
Journal code: XW7. ISSN: 0300-5860.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA German
FS Priority Journals
EM 199302
AB A 65-year-old female patient with a history of recurrent sustained ventricular tachycardia presented with an incessant ventricular tachycardia (cycle length 360-400 ms) following implantation of a cardioverter-defibrillator (ICD). The tachycardia could not be terminated by antiarrhythmic drug treatment, antitachycardia pacing or internal defibrillation via the ICD. An invasive electrophysiologic study revealed that the mechanism of this newly occurring tachycardia was bundle branch reentry. The patient underwent emergency catheter ablation using radiofrequency (**RF**) current. Endocardial mapping of the right bundle branch and of the distal His bundle was performed and a bundle branch reentry tachycardia was diagnosed. After delivery of the fifth **RF**-impulse, the tachycardia terminated and complete AV block was induced. No malfunction of the ICD was observed following **RF**-ablation. The patient was hemodynamically stable with a junctional escape rhythm and antibradycardia pacing back-up of the ICD (VVI-mode). This case report demonstrates the feasibility of **RF** catheter ablation in the treatment of incessant bundle branch reentry tachycardia as a complementary option after implantation of an ICD.
CT Check Tags: Case Report; Female; Human
Aged
Bundle of His: PP, physiopathology
Bundle of His: SU, surgery
Bundle-Branch Block: PP, physiopathology

*Bundle-Branch Block: SU, surgery
*Catheter Ablation: IS, instrumentation
Coronary Artery Bypass
***Defibrillators, Implantable**
English Abstract
Heart Aneurysm: SU, surgery
Myocardial Infarction: SU, surgery
Postoperative Complications: PP, physiopathology
Postoperative Complications: SU, surgery
Reoperation
Tachycardia, Sinoatrial Nodal Reentry: PP, physiopathology
*Tachycardia, Sinoatrial Nodal Reentry: SU, surgery

L47 ANSWER 3 OF 5 MEDLINE
AN 87028687 MEDLINE
DN 87028687
TI Comparison of perioperative and postoperative phasic blood flow in aortocoronary venous bypass grafts by means of pulsed Doppler echocardiography with implantable microprobes.
AU Payen D; Bousseau D; Laborde F; Beloucif S; Menu P; Compos A; Echter E; Piwnica A
SO CIRCULATION, (1986 Nov) 74 (5 Pt 2) III61-7.
Journal code: DAW. ISSN: 0009-7322.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198702
AB Although graft dimension and hemodynamic variables have been suggested as important determinants of the functional results of aortocoronary bypass grafting, there is no easy-to-use bedside method of monitoring phasic blood flow in coronary bypass grafts. We developed a miniaturized implantable silicone pulsed Doppler flow probe linked to a classic 8 **MHz** pulsed Doppler system.
This apparatus has an adjustable range-gated time system that permits accurate measurement of diameter (D, in mm), cross-sectional blood flow velocity (Vm, in cm/sec), and coronary bypass graft flow (CBGF, in ml/min) as pi D2/4 X Vm X 60. Ten patients (55 +/- 7.2 years SD) with preoperative left ventricular ejection fractions over 45% received the implantable flow probes during the aortocoronary venous bypass procedure. Closure of the chest altered systolic and diastolic components of flow velocity and CBGF decreased from 131 +/- 65.8 to 94 +/- 55 ml/min (-28%; p less than .01). Comparison between early postoperative values (intensive care unit) and values 6 days later showed significant increases in diameter from 4.2 +/- 0.9 to 5.3 +/- 0.9 mm (p less than .01) and in CBGF from 130 +/- 112 to 204 +/- 86 ml/min (p less than .01). We conclude that the implantable pulsed Doppler microprobe is a sensitive bedside method for monitoring aortocoronary bypass graft diameter and blood flow in the postoperative period.
CT Check Tags: Comparative Study; Human; Support, Non-U.S. Gov't
*Blood Flow Velocity

***Coronary Artery Bypass**
*Echocardiography
Echocardiography: IS, instrumentation
Electrodes, Implanted
Intraoperative Period
Microelectrodes
Middle Age
Postoperative Period
Saphenous Vein: PP, physiopathology
*Saphenous Vein: TR, transplantation

L47 ANSWER 4 OF 5 MEDLINE
AN 82218351 MEDLINE
DN 82218351
TI Monitoring regional myocardial function after **myocardial revascularization.**
AU Wiener L; Santamore W; Templeton J Y 3d; Plzak L
NC HL 26592 (NHLBI)
HL 22815 (NHLBI)
SO JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY, (1982 Jul) 84 (1) 130-7.
Journal code: K9J. ISSN: 0022-5223.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198210
AB A system using only small platinum **electrodes** for monitoring intramyocardial polarographic oxygen tension (MP02), electrograms (ECG), and impedance-derived wall motion (WM) was experimentally tested and clinically implemented. In nine open-chest, anesthetized dogs. two platinum **electrodes** were inserted along the subepicardial direction of the muscle fibers. As verified by cinefluoroscopy, WM corresponded to changes in distance between the platinum **electrodes** (r = 0.91 +/- 0.02). The system responded to a 10 minute occlusion of the left anterior descending coronary artery (LAD) as follows: Dyskinetic WM appeared in 10 seconds (p less than 0.05); MP02 decreased (26.4 +/- 1.8 to 14.8 +/= 1.9 mm Hg, p less than 0.05) in 1 minute; ST segments increased (4.8 +/- 1.5 to 12.3 +/- 3.1 **mV**, p less than 0.05) in 3 minutes. On reperfusion, WM, ST segments, and MP02 normalized in 15 seconds, 30 seconds, and 1 minute, respectively. Hence, ischemia affects WM more acutely than either ECG or MP02. In five patients, ischemic changes before coronary bypass were reversed over 5 days: MP02 (17.4 +/-; 1.9 to 19.6 +/-1.7 mm Hg), ST segment (2.2 +/- 6 to 1.0 +/- 0.4 **mV**), and WM returned to normal. Thus a system has been designed which simultaneously monitors regional WM, MP02, and ECG. The method has proved to be a sensitive and practical approach for assessing perioperative myocardial function.
CT Check Tags: Animal; Human; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

Cardiography, Impedance
Cardiopulmonary Bypass
Dogs
Electrocardiography
Electrodes
*Heart: PH, physiology
Heart: PP, physiopathology
*Monitoring, Physiologic: MT, methods
Myocardial Contraction
***Myocardial Revascularization**
Platinum
RN 7440-06-4 (Platinum)

L47 ANSWER 5 OF 5 MEDLINE
AN 77098738 MEDLINE
DN 77098738
TI Effects of coronary bypass surgery on the electrical activity of **revascularized myocardium**. Immediate and early postoperativeobservations.
AU Sung R J; Bassett A L; Thurer R J; Vargas A; Williams W; Kaiser G A; Gelband H; Myerburg R J
SO JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY, (1977 Feb) 73 (2) 269-77.
Journal code: K9J. ISSN: 0022-5223.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 197705
AB The effect of **myocardial revascularization** on bipolar epicardial electrograms was recorded with fixed wire **electrodes** from revascularized left ventricular sites and from control sites on the right ventricle. Studies were performed during and after surgery in 19 patients undergoing aorta-coronary bypass grafting for occlusive coronary artery disease and in 6 additional patients having aortic valve replacement for isolated aortic valve disease. In the latter 6 patients, neither left nor right ventricular electrogram **voltage** changed immediately following aortic valve replacement; however, left ventricular electrogram **voltage** gradually decreased for 5 days postoperatively. In the 19 patients with coronary artery disease, electrogram **voltage** in the revascularized area increased immediately following coronary bypass grafting (+40 to +300 per cent) in 13 patients (68 per cent) and immediately decreased (-20 to -70 per cent) in 6 patients (32 per cent). In 5 of the patients showing immediate increases, temporary occlusion of the bypass grafts for 3 minutes during surgery resulted in a decrease of electrogram **voltage** in the distribution of the occluded bypass, followed by return to preocclusion levels after release. Postoperative monitoring of electrogram **voltage** for 5 days in all patients with coronary artery disease revealed that the electrogram **voltage** in the revascularized area decreased

to or below control levels in 16 patients (84 per cent) and remained increased in 3 patients (16 per cent). These observed changes did not correlate with preoperative hemodynamics, number of grafts, graft flow rate, aortic cross-clamp time, cardiopulmonary bypass time, and the early postoperative course. These preliminary observations suggest that coronary bypass grafting does affect the electrophysiological state of the **revascularized myocardium**. However, the mechanism by which it occurs and its clinical implications remain to be determined.

CT Check Tags: Human; Male; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
Adult
Aged
Angina Pectoris: SU, surgery
Aortic Valve Insufficiency: SU, surgery
Aortic Valve Stenosis: SU, surgery
*Coronary Artery Bypass
*Coronary Circulation
*Coronary Disease: SU, surgery
*Electrocardiography
Heart Valve Prosthesis
Hemodynamics
Middle Age
*Myocardial Contraction

=> file embase
FILE 'EMBASE' ENTERED AT 09:27:37 ON 18 AUG 1999

FILE COVERS 1974 TO 12 Aug 1999 (19990812/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l48 1-7 ti so ab ct

L48 ANSWER 1 OF 7 EMBASE
TI A critical period of ventricular fibrillation more susceptible to defibrillation: Real-time waveform analysis using a single ECG lead.
SO PACE - Pacing and Clinical Electrophysiology, (1996) 19/4 I (418-430).
ISSN: 0147-8389 CODEN: PPCEDP
AB Previous studies have suggested that variations in the underlying ventricular fibrillation (VF) waveform may be one of the factors responsible for the probabilistic nature of defibrillation. The heart appeared to be more susceptible to defibrillation at higher absolute VF **voltages** (AVFV). This study investigated in an open-chest canine model (n = 8), a newly developed system that analyzed the VF waveform in real-time, instantaneously determined the time to struck, and immediately delivered a fixed low energy DC

shock. A two parameter tracking technique using a running long-term and short-term AVFV average was devised to automatically identify a high **voltage** peak area of the VF waveform, which has been hypothesized to represent a critical period susceptible to defibrillation. Using a DC shock estimated at the 50% success level, the performance using this technique in 58 defibrillation trials was compared to the performance of the conventional method of shocking at a fixed time (random shock method) in 62 trials. Patch size, **electrode** location, and discharge **voltage** were kept constant while VF duration, transmyocardial resistance (**TMR**), energy delivered, and AVFV at the point of shock were measured. Shock energy and current, **TMR**, and VF duration were similar with both shock methods. A significantly higher AVFV was observed for trials performed with the peak struck method (0.66 .+-. 0.02 **mV**) as compared to trials performed with the random shock method (0.25 .+-. 0.09 **mV**) ($P < 0.003$). Using lead II as the only sensing lead, the success rate was increased in 6 of 8 dogs (75%) with the new method. One animal showed identical performance, and one animal a worse performance. The overall increase in success rate was 24% using a single ECG lead (range 0%-100%; $P < 0.04$). Our data document that using this algorithm a period of high VF **voltage** can be detected in real- time. The improved success in the majority of animals supports the hypothesis that a critical period susceptible to defibrillation exists during VF. However, the high A VFV detected using a single ECG lead did not translate to an improved success rate in all animals. This suggests that other factors in addition to the VF **voltage** measured on a single lead of the ECG are important in characterizing this critical period.

CT Medical Descriptors:
*defibrillation
*heart ventricle fibrillation
algorithm
animal experiment
animal model
animal tissue
article
cardioversion
electrocardiogram
hypothesis
myocardial disease
nonhuman

L48 ANSWER 2 OF 7 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.

TI Changes in transmyocardial impedance during prolonged ventricular fibrillation. Implications for current flow and delivered energy during DC countershock.

SO American Heart Journal, (1990) 120/2 (334-339).
ISSN: 0002-8703 CODEN: AHJOA2

AB Transthoracic resistance (TTR) and transmyocardial resistance (**TMR**) were measured during 10 minutes of uninterrupted ventricular fibrillation (VF) in a canine model. **TMR** was

measured at 10- to 50-second intervals with two wire-mesh patch **electrodes** in 16 dogs. TTR was measured through two identical low-impedance **electrodes**. A monophasic exponentially truncated pulse with a duration of 5 msec was used for measurement of **TMR** as well as TTR. Low-energy pulses of 100 V were used for **TMR** measurements and pulses of 300 V for TTR measurements. **TMR** showed an increase of 22.8 .+-. 5.14 .OMEGA. (from 96.2 .+-. 12.3 .OMEGA.) after 600 seconds of uninterrupted VF ($p < 0.006$). TTR showed a change of 2.4 .+-. 1.94 .OMEGA., which was not statistically significant in comparison with the initial value of 69.0 .+-. 11.4 .OMEGA.. A mathematical model was developed to predict energy delivered to the heart after a transthoracic shock. Observed values of **TMR** and TTR were used in this model. With the use of this model, the predicted fall in transmyocardial current after 600 seconds of uninterrupted VF and 19.3%, and the fall in energy delivered to the heart was 14%. Our study suggests that increase in **TMR** may contribute to the observed lack of successful defibrillation during prolonged VF.

CT Medical Descriptors:
*heart muscle
*heart ventricle fibrillation
*impedance
dog
energy
animal experiment
nonhuman
article
priority journal

L48 ANSWER 3 OF 7 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.

TI Monitoring regional myocardial function after **myocardial revascularization.**

SO Journal of Thoracic and Cardiovascular Surgery, (1982) 84/1 (130-137).
CODEN: JTCSAQ

AB A system using only small platinum **electrodes** for monitoring intramyocardial polarographic oxygen tension (MP(O2), electrograms (ECG), and impedence-derived wall motion (WM) was experimentally tested and clinically implemented. In nine open-chest, anesthetized dogs, two platinum **electrodes** were inserted along the subepicardial direction of the muscle fibers. As verified by cinefluoroscopy, WM corresponded to changes in distance between the platinum **electrodes** (r = 0.91 .+-. 0.02). The system responded to a 10 minute occlusion of the left anterior descending coronary artery (LAD) as follows: Dyskinetic WM appeared in 10 seconds ($p < 0.05$); MP(O2 decreased (26.4 .+-. 1.8 to 14.8 .+-. 1.9 mm Hg, $p < 0.05$) in 1 minute; ST segments increased (4.8 .+-. 1.5 to 12.3 .+-. **mV**, $p < 0.05$) in 3 minutes. On reperfusion, WM, ST segments, and MP(O2 normalized in 15 seconds, 30 seconds, and 1 minute, respectively. Hence, ischemia affects WM more acutely than either ECG or MP(O2. In five patients, ischemic changes before coronary bypass were reversed over 5 days: MPo2 (17.4 .+-.

1.9 to 19.6 .+-. 1.7 mm Hg), ST segment (2.2 .+-. 6 to 1.0 .+-. 0.4 **mV**), and WM returned to normal. Thus a system has been designed which simultaneously monitors regional WM, MP(O2, and ECG. The method has proved to be a sensitive and practical approach for assessing perioperative myocardial function.

CT Medical Descriptors:
*electrocardiography
***heart electrode**
*heart left ventricle performance
*heart left ventricle wall motion
*heart muscle neovascularization
coronary artery
dog
oxygen tension
patient
st segment
heart

L48 ANSWER 4 OF 7 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
TI [Aortic valve replacement in 34 patients over 70 years of age]. REMPLACEMENT VALVULAIRE AORTIQUE CHEZ 34 OPERES DE PLUS DE 70 ANS.
SO Archives des Maladies du Coeur et des Vaisseaux, (1980) 73/9 (1103-1109).
CODEN: AMCVAN
AB A group of 34 patients (average age 72.7 yr) was operated on between 1972 and 1979 for aortic valve disease (32 AS, 2 AI). 13 had Stage III and 10 Stage IV dyspnoea (NYHA); 15 had had syncope and 27 effort angina. 15 patients underwent coronary angiography (14 with effort angina): 10 patients had no significant coronary lesions and the 5 others had significant stenosis. However, only one of these patients was suitable for aorto-coronary bypass surgery. Aortic valve replacement with a mechanical prosthesis was performed in 34 patients. Myocardial protection consisted of general hypothermia (24-25%) and selective cardiac hypothermia in all cases. Left coronary perfusion was carried out (8 cases) in the earlier patients, and cardioplegia (12 cases) in the later patients. One mitral commissurotomy and one aorto-coronary bypass graft were also performed. The hospital mortality rate (1 month) was 8.8% (3 cases). One patient died of myocardial infarction (MI), one of haemorrhage and one of acute haemorrhagic pancreatitis. The post-operative morbidity was mainly neurological (9 cases, 8 of which regressed), respiratory (5 cases) and cardiovascular (one MI, 3 regressive low output syndromes). Six out of seven patients in whom prophylactic epicardial **electrodes** were implanted required permanent pacemakers. The long-term mortality rate (average survival 31 months) was 11.7% at present (4 cases). One death was caused by malnutrition, one by MI, one by pulmonary embolism and one by AI. None of the survivors has angina or syncope and all are Stage I or II with or without digitalis and diuretic therapy. The hospital mortality rate of this group (8.8%) was greater, though not significantly than that (4.8%) of the other 287 cases of AS operated during the same period. However, the length and quality of life

afforded to survivors compared to the natural outcome of nonoperated patients perfectly justifies surgical intervention. Nevertheless, from our experience, surgical success depends on a number of factors. Preoperative investigation should consist of: cardiac catheterisation and coronary angiography to assess the indications for **myocardial revascularisation** and **myocardial** protection; lung function tests and preoperative chest physiotherapy; and Doppler ultrasound investigation of the main cephalic truncs with angiography in cases with significant stenosis to assess the need for a carotid revascularisation procedure. During surgery, attention should be paid to the following points: maintenance of a stable haemodynamic state during bypass to protect cerebral perfusion; and excellent myocardial protection by general hypothermia and selective cardiac hypothermia with cardioplegia. The fragility of the tissues and the extensive calcification is often encountered. Prophylactic epicardial pacing wire can be used in patients with atrioventricular or intraventricular conduction defects.

CT Medical Descriptors:
*aorta valve replacement
aged
patient follow up
major clinical study
therapy
heart

L48 ANSWER 5 OF 7 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.

TI Effects of coronary bypass surgery on the electrical activity of **revascularized myocardium**. Immediate and early postoperative observations.

SO Journal of Thoracic and Cardiovascular Surgery, (1977) 73/2 (269-277).
CODEN: JTCSAQ

AB The effect of **myocardial revascularization** on bipolar epicardial electrograms was recorded with fixed wire **electrodes** from control sites on the right ventricle. Studies were performed during and after surgery in 19 patients undergoing aorta coronary bypass grafting for occlusive coronary artery disease and in 6 additional patients having aortic valve replacement for isolated aortic valve disease. In the latter 6 patients, neither left nor right ventricular electrogram **voltage** changed immediately following aortic valve replacement; however, left ventricular electrogram **voltage** gradually decreased for 5 days postoperatively. In the 19 patients with coronary artery disease, electrogram **voltage** in the revascularized area increased immediately following coronary bypass grafting (=40 to =300 per cent) in 13 patients (68 per cent) and immediately decreased (-20 to -70 per cent) in 6 patients (32 per cent). In 5 of the patients showing immediate increases, temporary occlusion of the bypass grafts for 3 minutes during surgery resulted in a decrease of electrogram **voltage** in the distribution of the occluded bypass, followed by return to preocclusion levels

after release. Postoperative monitoring of electrogram **voltage** for 5 days in all patients with coronary artery disease revealed that the electrogram **voltage** in the revascularized area decreased to or below control levels in 16 patients (84 per cent) and remained increased in 3 patients (16 per cent). These observed changes did not correlate with preoperative hemodynamics, number of grafts, graft flow rate, aortic cross clamp time, cardiopulmonary bypass time, and the early postoperative course. These preliminary observations suggest that coronary bypass grafting does affect the electrophysiological state of the **revascularized myocardium**. However, the mechanism by which it occurs and its clinical implications remain to be determined.

CT Medical Descriptors:
*coronary artery bypass graft
*electrocardiography
*epicardium
*heart muscle revascularization
major clinical study
therapy

L48 ANSWER 6 OF 7 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.

TI Monitoring tissue oxygenation of the heart after **myocardial revascularization.**

SO American Journal of Cardiology, (1976) 38/1 (38-45).
CODEN: AJCDAG

AB A polarographic technique capable of simultaneous monitoring of myocardial tissue oxygen tension (MPO2) and intramyocardial electrograms by way of the same **electrodes** has been developed. Initially, the method was evaluated in dogs to verify the appropriateness of the directional changes of MPO2 in function of selected determinants of myocardial oxygen supply (regional coronary blood flow, arterial blood oxygen tension) and demand (heart rate, force of ventricular contraction). A combined reduction of MPO2 and elevation of the S T segment in the corresponding electrograms was observed only when a 50 percent or greater reduction of blood flow to the sampled area was effected. Subsequently, in nine patients undergoing aortocoronary bypass surgery, MPO2 was measured from 48 areas for 2 weeks postoperatively. In 11 normal and 31 revascularized areas, MPO2 increased during the postoperative period. In four areas subsequently found to be supplied by occluded grafts, MPO2 decreased from 12.7 .+-. 3.1 (mean .+-. standard error) to 10.1 .+-. 3.3 mm Hg (P <0.05). In two areas, MPO2 decreased during the 3rd postoperative day from 16 to 3 and from 14 to 4.2 mm Hg, respectively. This reduction was attended by a significant rise in the S T segment of the corresponding electrograms. This finding preceded by 24 hours standard electrocardiographic evidence of myocardial infarction. This technique appears to be sensitive and reliable, and thereby capable of enhancing the management of patients during the high risk early postoperative period after coronary bypass surgery.

CT Medical Descriptors:

*coronary artery bypass graft
*heart muscle oxygen tension
*heart muscle revascularization
*monitoring
major clinical study
methodology

L48 ANSWER 7 OF 7 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
TI Cardiac vein **myocardial revascularization**: an experimental study and report of 3 clinical cases.
SO Annals of Thoracic Surgery, (1975) 20/5 (550-557).
CODEN: ATHSAK
AB The feasibility of utilizing the coronary venous system for **myocardial revascularization** was explored in 18 dog experiments and 3 clinical patients at St Mary Medical Center. Experimental models were developed using mammary artery to coronary vein anastomoses, free vein grafts from the aorta to the coronary veins, and saphenous vein bypass grafts from the aorta to the cardiac veins in the patients. Evaluation of **myocardial revascularization** was done by one or more of the following methods: (1) electromagnetic flowmeter measurements of graft blood flow; (2) myocardial scanning after injection of radioactive materials; (3) hydrogen **electrode** evaluation of arteriovenous shunting; (4) coronary cineangiograms; (5) methylene blue injections with visual observation of myocardial staining and collateral venous pathways; (6) pulse flow tracings; (7) electrocardiographic changes; and (8) myocardial venous capillary response to papaverine and isoproterenol. The experimental studies consistently demonstrated evidence of **myocardial revascularization** through the coronary venous sytem. Three patients with intractable angina pectoris and previous unsuccessful revascularization procedures underwent saphenous vein bypass grafting from the aorta to the coronary vein. Postoperative coronary cineangiograms showed patency in 2 of 4 grafts. Myocardial scanning demonstrated radioactivity in the regions served by the patent grafts. All patients survived and were partially or completely relieved of their symptoms.
CT Medical Descriptors:
*angina pectoris
*angiocardiography
*aorta
*coronary vein
*echocardiography
*electromagnetic flowmeter
*heart muscle revascularization
*heart surgery
*vein graft
major clinical study
therapy
theoretical study
dog

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=> d l49 1-3 all

L49 ANSWER 1 OF 3 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1998:142462 BIOSIS
DN PREV199800142462
TI Generation and observation of **radio frequency** thermal lesion ablation for interventional magnetic resonance imaging.
AU Chung, Yiu-Cho; Duerk, Jeffrey L. (1); Lewin, Jonathan S.
CS (1) Dep. Radiol.-MRI, Univ. Hosp. Cleveland, 11100 Euclid Ave., Cleveland, OH 44106 USA
SO Investigative Radiology, (Aug., 1997) Vol. 32, No. 8, pp. 466-474. ISSN: 0020-9996.
DT Article
LA English
AB RATIONALE AND OBJECTIVES. Recently, there has been increased interest in interventional magnetic resonance (MR) imaging and minimally invasive cancer therapy via **radio frequency** (**RF**) thermal ablation. In this work, we examined **RF** thermal lesion generation in phantoms and ex vivo bovine liver and correlated them with MR images under a variety of conditions, which begins our assessment of the role of MR imaging in this new method for cancer treatment. METHODS. **Radio frequency** lesions were created in gel phantoms and ex vivo bovine liver, using stationary (bovine liver) and variable speed (gel) moving **electrodes** to create lesions with shapes mimicking tumors. Ex vivo bovine liver lesions were made with the tissue held at room temperature (n = 4) and in a 37degree C saline bath (n = 3) using a 16-gauge **electrode** (tip temperature: 70degree C, 80degree C, and 90degree C; ablation time: 1-13 minutes). Electrical impedance and **RF** power were plotted during ablation. After ablation, **RF**-induced lesions were imaged with a 0.2-tesla (T) MR system using a variety of pulse sequences. RESULTS. Complex shaped lesions were created successfully in phantoms. Averaged maximum ex vivo lesion volume made at 90degree C ablation experiments holding the tissue temperature at 37degree C and at room temperature were 1.58 +- 0.35 cm3 and 1.0 +- 0.26 cm3 respectively (confidence interval: 90%). The aspect ratios and **RF** power of the lesions decreased as ablations proceeded.

Impedance dropped during the first 2 minutes of the ablation. Ex vivo lesions appeared as regions of low-signal amplitude in T2-weighted MR images. CONCLUSIONS. Phantom ablation experience may be useful and applicable in thermotherapy planning. Lesions made in ex vivo bovine liver held at 37degree C via a saline bath are larger than those created at room temperature. Lesion shapes are ablation time dependent until thermal equilibrium is reached. Impedance reduction and lesion formation are related; 0.2-**TMR** systems can image **RF** energy-induced thermal lesions.

CC Radiation - General *06502
Pathology, General and Miscellaneous - Diagnostic *12504
Pathology, General and Miscellaneous - Therapy *12512
Digestive System - General; Methods *14001
Neoplasms and Neoplastic Agents - General *24002

BC Bovidae 85715

IT Major Concepts
Methods and Techniques

IT Parts, Structures, & Systems of Organisms
liver: digestive system

IT Diseases
cancer: neoplastic disease

IT Methods & Equipment
interventional magnetic resonance imaging: diagnostic method; **radio frequency** thermal ablation: therapeutic method

IT Miscellaneous Descriptors
lesion formation; tissue impedance

ORGN Super Taxa
Bovidae: Artiodactyla, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
bovine (Bovidae)

ORGN Organism Superterms
Animals; Artiodactyls; Chordates; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Vertebrates

L49 ANSWER 2 OF 3 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1990:445341 BIOSIS

DN BA90:95981

TI CHANGES IN TRANSMYOCARDIAL IMPEDANCE DURING PROLONGED VENTRICULAR FIBRILLATION IMPLICATIONS FOR CURRENT FLOW AND DELIVERED ENERGY DURING DC COUNTERSHOCK.

AU MAHMUD R; HSIA P-W; JOLLY S R; JORDAN J C

CS CARDIAC ELECTROPHYSIOL., SECT. CARDIOL., DEP. MED., SCH. MED., EAST CAROLINA UNIV., GREENVILLE, NC 27858-4354.

SO AM HEART J, (1990) 120 (2), 334-339.
CODEN: AHJOA2. ISSN: 0002-8703.

FS BA; OLD

LA English

AB Transthoracic resistance (TTR) and transmyocardial resistance (**TMR**) were measured during 10 minutes of uninterrupted ventricular fibrillation (VF) in a canine model. **TMR** was measured at 10- to 50-second intervals with two wire-mesh patch

electrodes in 16 dogs. TTR was measured through two identical low-impedance **electrodes**. A monophasic exponentially truncated pulse with a duration of 5 msec was used for measurement of **TMR** as well as TTR. Low-energy pulses of 100 V were used for **TMR** measurements and pulses of 300 V for TTR measurements. **TMR** showed an increase of 22.8 .+-. 5.14 .OMEGA. (from 96.2 .+-. 12.3 .OMEGA.) after 600 seconds of uninterrupted VF ($p < 0.0006$). TTR showed a change of 2.4 .+-. 1.94 .OMEGA., which was not statistically significant in comparison with the initial value of 69.0 .+-. 11.4 .OMEGA.. A mathematical model was developed to predict energy delivered to the heart after a transthoracic shock. Observed values of **TMR** and TTR were used in this model. With the use of this model, the predicted fall in transmyocardial current after 600 seconds of uninterrupted VF and 19.3%, and the fall in energy delivered to the heart was 14%. Our study suggests that increase in **TMR** may contribute to the observed lack of successful defibrillation during prolonged VF.

CC External Effects - Electric, Magnetic and Gravitational Phenomena *10610
Chordate Body Regions - Thorax *11312
Metabolism - Energy and Respiratory Metabolism *13003
Cardiovascular System - General; Methods 14501
Cardiovascular System - Heart Pathology *14506
Cardiovascular System - Blood Vessel Pathology *14508
Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies 15002

BC Canidae 85765

IT Miscellaneous Descriptors
DOG TRANSTHORACIC RESISTANCE METABOLIC PARAMETER CHANGE DEFIBRILLATION DIRECT CURRENT

L49 ANSWER 3 OF 3 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1977:166575 BIOSIS

DN BA63:61439

TI EFFECTS OF CORONARY BYPASS SURGERY ON THE ELECTRICAL ACTIVITY OF RE VASCULARIZED MYO CARDIUM IMMEDIATE AND EARLY POST OPERATIVE OBSERVATIONS.

AU SUNG R J; BASSETT A L; THURER R J; VARGAS A; WILLIAMS W; KAISER G A; GELBAND H; MYERBURG R J

SO J THORAC CARDIOVASC SURG, (1977) 73 (2), 269-277.
CODEN: JTCSAQ. ISSN: 0022-5223.

FS BA; OLD

LA Unavailable

AB The effect of **myocardial revascularization** in bipolar epicardial electrograms was recorded with fixed wire **electrodes** from revascularized left ventricular sites and from control sites on the right ventricle. Studies were performed during and after surgery in 19 patients undergoing aorta-coronary bypass grafting for occlusive coronary artery disease and in 6 additional patients having aortic valve replacement for isolated aortic valve disease. In the latter 6 patients, neither left nor right ventricular electrogram **voltage** changed immediately

following aortic valve replacement but left ventricular electrogram **voltage** gradually decreased for 5 days postoperatively. In the 19 patients with coronary artery disease, electrogram **voltage** in the revascularized area increased immediately following coronary bypass grafting (+40 to +300%) in 13 patients (68%) and immediately decreased (-20 to -70%) in 6 patients (32%). In 5 of the patients showing immediate increases, temporary occlusion of the bypass grafts for 3 min during surgery resulted in a decrease of electrogram **voltage** in the distribution of the occluded bypass, followed by return to preocclusion levels after release. Postoperative monitoring of electrogram **voltage** for 5 days in all patients with coronary artery disease revealed that the electrogram **voltage** in the revascularized area described to or below control levels in 16 patients (84%) and remained increased in 3 patients (16%). These observed changes did not correlate with preoperative hemodynamics, number of grafts, graft flow rate, aortic cross-clamp time, cardiopulmonary bypass time, and the early postoperative course. Coronary bypass grafting apparently does affect the electrophysiological state of the **revascularized myocardium**, but the mechanism by which it occurs and its clinical implications remain to be determined.

CC Methods, Materials and Apparatus, General - Photography 01012
Biophysics - General Biophysical Techniques 10504
Anatomy and Histology, General and Comparative - Surgery *11105
Anatomy and Histology, General and Comparative - Regeneration and Transplantation *11107
Pathology, General and Miscellaneous - Therapy 12512
Cardiovascular System - General; Methods *14501
Cardiovascular System - Physiology and Biochemistry *14504
Cardiovascular System - Heart Pathology *14506
Cardiovascular System - Blood Vessel Pathology *14508

BC Hominidae 86215

IT Miscellaneous Descriptors
HUMAN GRAFTING OCCLUSIVE CORONARY ARTERY DISEASE AORTIC VALVE DISEASE ELECTROGRAM

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L50 ANSWER 1 OF 6 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1999-179878 [15] WPIDS
CROSS REFERENCE: 1993-242930 [30]; 1995-006306 [01]; 1995-206153 [27]; 1996-476776 [47]; 1997-051698 [05]; 1997-297829 [27]; 1997-297832 [27]; 1998-120425 [11]; 1998-120493 [11]; 1998-530718 [45]; 1999-130298 [11]
DOC. NO. NON-CPI: N1999-132150
TITLE: Laser **myocardial revascularization** (LMR) method for treating coronary artery disease.
DERWENT CLASS: P32 S05
INVENTOR(S): EGGERS, P E; THAPLIYAL, H V
PATENT ASSIGNEE(S): (ARTH-N) ARTHROCARE CORP
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5873855	A	19990223	(199915)*		38	A61F007-12

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
US 5873855	A	CIP of	US 1992-817575	19920107
		CIP of	US 1992-958977	19921009
		CIP of	US 1993-59681	19930510
		CIP of	WO 1994-US5168	19940510
		CIP of	US 1995-485219	19950607
		CIP of	US 1995-562331	19951122
			US 1996-753227	19961122

FILING DETAILS:

PATENT NO	KIND		PATENT NO
US 5873855	A	CIP of	US 5366443
		CIP of	US 5683366

CIP of US 5697281

PRIORITY APPLN. INFO: US 1996-753227 19961122; US 1992-817575 19920107; US 1992-958977 19921009; US 1993-59681 19930510; WO 1994-US5168 19940510; US 1995-485219 19950607; US 1995-562331 19951122

INT. PATENT CLASSIF.:
MAIN: A61F007-12

BASIC ABSTRACT:

US 5873855 A UPAB: 19990707

NOVELTY - **High frequency voltage** is applied between the **electrodes** and a revascularization channel (264) is formed by removing the tissue at the heart wall. The channel extends from the surface of heart wall into myocardial (262) to restore blood flow to it. The **voltage** is applied continuously in pulses corresponding to heart beat.

DETAILED DESCRIPTION - A probe (202) comprises an active **electrode** (270) and an annular return **electrode** (272). The active **electrode** is positioned near the surface of a heart wall (260).

USE - For forming revascularization channel during electrosurgery for treatment of coronary artery disease. Also applicable to anthroscopic, laproscopic, thorascopic and other endoscopic procedures.

ADVANTAGE - The channels are formed efficiently to increase blood flow from ventricular cavity to the myocardium. The channels prevent accidental puncturing of relatively large vessels in heart wall.

DESCRIPTION OF DRAWING(S) - The figure represents the cross sectional view of probe forming channel through myocardium and sectional view of thoracic cavity respectively.

Probe 202

Myocardial 262

Revascularization channel 264

Active and annular **electrodes** 270,272

12,14/23

FILE SEGMENT: EPI GMPI
FIELD AVAILABILITY: AB; GI
MANUAL CODES: EPI: S05-A02A; S05-B01

L50 ANSWER 2 OF 6 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1999-130298 [11] WPIDS
CROSS REFERENCE: 1993-242930 [30]; 1995-006306 [01]; 1995-206153 [27]; 1996-476776 [47]; 1997-051698 [05]; 1997-297829 [27]; 1997-297832 [27]; 1998-120425 [11]; 1998-120493 [11]; 1998-530718 [45]; 1999-179878 [15]
DOC. NO. NON-CPI: N1999-094789
TITLE: Transmocardial revascularization method of heart of patient - involves forming revascularizing channel through portion of heart with **high**

frequency electrical energy and thereby positioning radially expandable lumen prosthesis within channel.

DERWENT CLASS: P31 S05
INVENTOR(S): EGGERS, P E; THAPLIYAL, H V
PATENT ASSIGNEE(S): (ARTH-N) ARTHROCARE CORP
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5860951	A	19990119	(199911)*		37	A61B001-00

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
US 5860951	A	CIP of	US 1992-817575	19920107
		CIP of	US 1992-958977	19921009
		CIP of	US 1993-59681	19930510
		CIP of	WO 1994-US5168	19940510
		CIP of	US 1995-485219	19950607
		CIP of	US 1995-562331	19951122
			US 1996-753226	19961122

FILING DETAILS:

PATENT NO	KIND		PATENT NO
US 5860951	A	CIP of	US 5366443
		CIP of	US 5697281

PRIORITY APPLN. INFO: US 1996-753226 19961122; US 1992-817575 19920107; US 1992-958977 19921009; US 1993-59681 19930510; WO 1994-US5168 19940510; US 1995-485219 19950607; US 1995-562331 19951122
INT. PATENT CLASSIF.:
MAIN: A61B001-00
BASIC ABSTRACT:

US 5860951 A UPAB: 19990707
NOVELTY - The active **electrode** surface is positioned in close proximity to a target site on the wall of a patient's heart. A **high frequency voltage** is applied between the active **electrode** surface and the return **electrode** to ablate the tissue at the heart wall and to form a revascularizing channel (264) through a portion of a heart wall (260). The channel extends through an exterior heart wall into a myocardium (262). The radially expandable lumen prosthesis is positioned within the revascularizing channel to maintain patency of the channel. DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for electrosurgical **myocardial revascularization**

system.

USE - For ablating heart tissue for increasing flow of blood to patient's heart. In treatment of coronary artery disease.

ADVANTAGE - Allows surgeon to more accurately determine when to terminate cutting of given channel so as to minimize damage to surrounding tissues and to minimize bleading into thoracic cavity. Eliminates need for separate steerable guiding catheter to guide into heart. DESCRIPTION OF DRAWING(S) - The figure shows the sectional view of human heart in which transmocardial revascularization procedure is carried out. (260) Heart wall; (262) **Myocardium**; (264) **Revascularizing** channel.

Dwg.11/23

FILE SEGMENT: EPI GMPI
FIELD AVAILABILITY: AB; GI
MANUAL CODES: EPI: S05-B03

L50 ANSWER 3 OF 6 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1998-398736 [34] WPIDS
CROSS REFERENCE: 1995-074964 [10]; 1996-151080 [15]; 1997-372548 [34]; 1997-372550 [34]; 1997-372649 [34]; 1997-424685 [39]; 1997-424686 [39]; 1997-424689 [39]; 1997-424691 [39]; 1997-424704 [39]; 1997-424706 [39]; 1997-424713 [39]; 1997-424714 [39]; 1998-018249 [02]; 1998-130447 [12]; 1998-217003 [19]; 1998-387709 [33]; 1998-387710 [33]; 1999-142523 [12]
DOC. NO. NON-CPI: N1998-310213
TITLE: Percutaneous **myocardial revascularisation** treatment apparatus - has probe for engagement of heart tissue, revascularisation device for imparting energy to heart tissue to generate perfusion-enhancing channels, and sensor.
DERWENT CLASS: P31 P32 S05
INVENTOR(S): BEN-HAIM, S; YARON, U; ZILBERSTEIN, J; BEN HAIM, S
PATENT ASSIGNEE(S): (BIOS-N) BIOSENSE INC
COUNTRY COUNT: 79
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9830144	A1	19980716	(199834)*	EN	28	A61B005-04
RW: AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW						
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW						
AU 9742182	A	19980803	(199850)			A61B005-04
EP 893965	A1	19990203	(199910)	EN		A61B005-04
R: DE ES FR GB IT NL						

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9830144	A1	WO 1997-IL307	19970915
AU 9742182	A	AU 1997-42182	19970915
EP 893965	A1	EP 1997-940316	19970915
		WO 1997-IL307	19970915

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9742182	A	Based on	WO 9830144
EP 893965	A1	Based on	WO 9830144

PRIORITY APPLN. INFO: WO 1997-IL11 19970108
INT. PATENT CLASSIF.:
MAIN: A61B005-04
SECONDARY: A61B017-36; A61F002-00; A61F007-00
BASIC ABSTRACT:
WO 9830144 A UPAB: 19990324
The apparatus comprises an elongate probe (52) having distal end (64) for engaging heart tissue (86) of a subject, and a revascularisation device (60), which imparts energy for generating perfusion-enhancing channels in the heart, and a sensor (42), which provides an indication responsive to the treatment. The sensor receives signals generated by the body of the subject responsive to the treatment.

The sensor comprises an **electrode**, which is positioned on the probe adjacent the distal end, blood flow sensor which generates signals responsive to microcirculation, and may comprise an optical sensor. The **electrode** is placed on the subjects body independent of the probe. The revascularisation device applies either a high intensity ultrasonic radiation, laser radiation, **RF** energy, or mechanical energy to the heart tissue.

ADVANTAGE - Provides reliable indication as to whether energy pulse locally imparted to heart has successfully produced channel in myocardium, and provides indication that channels have been generated in accordance with predetermined dimensions, location and orientation.

Dwg.4/7
FILE SEGMENT: EPI GMPI
FIELD AVAILABILITY: AB; GI
MANUAL CODES: EPI: S05-B; S05-D01B1B

L50 ANSWER 4 OF 6 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1998-377333 [32] WPIDS
DOC. NO. NON-CPI: N1998-295041
TITLE: Electrosurgical device for trans-**myocardial revascularisation** of heart of patient -

penetrates patients heart and forms channels by activating **electrodes** attached to device.

DERWENT CLASS: P31 S05
INVENTOR(S): FRATELLO, D A; JANSSEN, W M; MCGARRY, M C
PATENT ASSIGNEE(S): (ADCO-N) ADVANCED CORONARY INTERVENTION INC
COUNTRY COUNT: 21
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9827877	A1	19980702	(199832)*	EN	40	A61B017-32
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE						
W: AU CA JP MX						
AU 9859050	A	19980717	(199848)			A61B017-32

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9827877	A1	WO 1997-US24162	19971223
AU 9859050	A	AU 1998-59050	19971223

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9859050	A	Based on	WO 9827877

PRIORITY APPLN. INFO: US 1996-777928 19961223
INT. PATENT CLASSIF.:
MAIN: A61B017-32
BASIC ABSTRACT:

WO 9827877 A UPAB: 19980812
The electrosurgical device includes a catheter body with one end inserted through a section of vasculature of a patient to a location of a heart. An **electrode** next to the catheter end supplies current to the heart so as to ablate a portion of the heart to form a channel in it. The end terminates at a point.

This end can penetrate the heart when a force is applied to another end. Several **electrodes** are positioned on the first end of the catheter. An impedance between several **electrodes** is sensed so as to determine the catheter position. Each of the **electrodes** is a an annular band spaced about the catheter.

USE - For **radio frequency** and other ablation techniques.

ADVANTAGE - Produces optimum residual channel with minimal blood loss. Reduces need for major heart surgery.

Dwg.3/21

FILE SEGMENT: EPI GMPI
FIELD AVAILABILITY: AB; GI
MANUAL CODES: EPI: S05-B03

L50 ANSWER 5 OF 6 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1998-286525 [25] WPIDS
DOC. NO. NON-CPI: N1998-225227
TITLE: Transvascular **transmyocardial revascularisation** device - has channelling catheter with **RF** probe to bore channel sideways from coronary artery or vein into myocardium.
DERWENT CLASS: P31 S05
INVENTOR(S): FOGARTY, T J; RYAN, T J
PATENT ASSIGNEE(S): (FOGA-I) FOGARTY T J
COUNTRY COUNT: 20
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9819614	A1	19980514	(199825)*	EN	45	A61B017-36
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE						
W: AU CA JP						
AU 9870002	A	19980529	(199841)			A61B017-36

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9819614	A1	WO 1997-US20498	19971110
AU 9870002	A	AU 1998-70002	19971110

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9870002	A	Based on	WO 9819614

PRIORITY APPLN. INFO: US 1997-819948 19970318; US 1996-745869 19961108
INT. PATENT CLASSIF.:
MAIN: A61B017-36
BASIC ABSTRACT:
WO 9819614 A UPAB: 19980624
The revascularisation device is for making channels in the heart and comprises a channelling catheter for channelling through the myocardium, a delivery catheter for delivering it to the heart through the coronary blood vessels which also has an infusion catheter with a distal infusion segment. The device can also be a channelling probe containing a lumen and which temporarily creates channels in the myocardium, plus an **RF** probe with a shaft containing an **RF electrode.**
USE - Device relates to **transmyocardial revascularisation** for treating heart disease.
ADVANTAGE - Allows **transmyocardial**

revascularisation to be accomplished percutaneously i.e. from coronary artery or veins which surround heart. Avoids need to enter chest cavity via highly invasive thoracotomy. Any residual bleeding caused by revascularisation bleeds into coronary arteries instead of into chest cavity or pericardial space.
Dwg.15/26

FILE SEGMENT: EPI GMPI
FIELD AVAILABILITY: AB; GI
MANUAL CODES: EPI: S05-B03

L50 ANSWER 6 OF 6 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1997-297832 [27] WPIDS
CROSS REFERENCE: 1993-242930 [30]; 1995-006306 [01]; 1995-206153 [27]; 1996-476776 [47]; 1997-051698 [05]; 1997-297829 [27]; 1998-120493 [11]; 1998-530718 [45]; 1999-130298 [11]; 1999-179878 [15]
DOC. NO. NON-CPI: N1997-246145
TITLE: Electrosurgical **myocardial revascularisation** method - involves applying **high frequency voltages** to **electrode** positioned adjacent to target position on heart wall.
DERWENT CLASS: P31 S05
INVENTOR(S): EGGERS, P E; THAPLIYAL, H V
PATENT ASSIGNEE(S): (ARTH-N) ARTHROCARE CORP
COUNTRY COUNT: 23
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9718768	A1	19970529	(199727)*	EN	77	A61B017-39
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE						
W: AU CA JP NZ						
AU 9710571	A	19970611	(199740)			
US 5683366	A	19971104	(199750)		32	A61B017-00
EP 865256	A1	19980923	(199842)	EN		
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE						
JP 11502144	W	19990223	(199918)		74	A61B017-39

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9718768	A1		WO 1996-US18651	19961122
AU 9710571	A		AU 1997-10571	19961122
US 5683366	A	CIP of	US 1992-817575	19920107
		CIP of	US 1992-958977	19921009
		CIP of	US 1993-59681	19930510
		CIP of	WO 1994-US5168	19940510
		CIP of	US 1995-485219	19950607
			US 1995-562331	19951122
EP 865256	A1		EP 1996-941423	19961122

		WO 1996-US18651 19961122
JP 11502144	W	WO 1996-US18651 19961122
		JP 1997-519878 19961122

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9710571	A	Based on	WO 9718768
US 5683366	A	CIP of	US 5366443
EP 865256	A1	Based on	WO 9718768
JP 11502144	W	Based on	WO 9718768

PRIORITY APPLN. INFO: US 1995-562331 19951122; US 1992-817575 19920107; US 1992-958977 19921009; US 1993-59681 19930510; WO 1994-US5168 19940510; US 1995-485219 19950607

REFERENCE PATENTS: US 4228800; US 4532924; US 5083565; US 5281216

INT. PATENT CLASSIF.:

MAIN: A61B017-00; A61B017-39

BASIC ABSTRACT:

WO 9718768 A UPAB: 19990416

The myocardial revasularisation method involves positioning an active **electrode** surface (82) in close proximity to a target site on the wall of the patient's heart, and applying **high frequency voltage** between the **electrode** and a return **electrode** (56) to ablate tissue. The **high frequency voltage** ablates the tissue and the **electrode** surface is axially translated into the space vacated by the removed tissue to bore a channel through the heart tissue.

The active **electrode** surface may be introduced into the thoracic cavity and placed adjacent to the epicardium to form an inward channel toward the ventricular cavity of the heart and be positioned adjacent to the epicardium to form a channel extending outward from the epicardium.

ADVANTAGE - Limits the depth of necrosis and tissue damage adjacent to the treatment site.

Dwg.1/23

FILE SEGMENT: EPI GMPI

FIELD AVAILABILITY: AB; GI

MANUAL CODES: EPI: S05-B03